

## ABSTRACT

A method for producing Ti or Ti alloys through reduction by Ca, including: a reduction step of holding a molten salt, containing  $\text{CaCl}_2$  and having Ca dissolved therein, in a reactor vessel 1, and reacting a metallic chloride containing  $\text{TiCl}_4$  with Ca in said salt to generate particles of Ti or Ti alloys in said salt; and a separation step of separating particles of Ti or Ti alloys, generated in said salt, from said salt. An electrolysis step 8, in which  $\text{CaCl}_2$  discharged outside the reactor vessel 1 is electrolyzed into Ca and  $\text{Cl}_2$ , and the generated Ca is used for the generation reaction of Ti or Ti alloys in the reactor vessel 1, is preferably added. In the electrolysis step 8, an alloy electrode made of a molten Ca alloy, if applied for a cathode, is effective in enhancing the electricity efficiency, and also can be effectively utilized as a carrier medium of Ca for raising a Ca concentration of molten salt. By this method, high-purity Ti metals can be efficiently and economically produced.